

In the Specification

Page 19, amend the paragraph beginning on line 8 and continuing onto page 20, line 3, as follows:

It is also well known that a circulant matrix is easily decomposed as follows:

$$\mathbf{C} = \mathbf{F}^{-1} \mathbf{D} \mathbf{F},$$

where \mathbf{F} is the Fourier matrix of size $(2L \times 2L)$ and \mathbf{D} is a diagonal matrix whose elements are the discrete Fourier transform of the first column of \mathbf{C} . If we multiply Eq. (5) by \mathbf{F} , we get the error signal in the frequency domain:

$$\begin{aligned}\underline{\mathbf{e}}(m) &= \underline{\mathbf{y}}(m) - \mathbf{G} \hat{\underline{\mathbf{y}}}'(m) \\ &= \underline{\mathbf{y}}(m) - \mathbf{G} \mathbf{D}(m) \hat{\underline{\mathbf{h}}},\end{aligned}$$

where

$$\underline{\mathbf{e}}(m) = \mathbf{F} \begin{bmatrix} \mathbf{0}_{L \times 1} \\ \underline{\mathbf{e}}(m) \end{bmatrix},$$

$$\underline{\mathbf{y}}(m) = \mathbf{F} \begin{bmatrix} \mathbf{0}_{L \times 1} \\ \underline{\mathbf{y}}(m) \end{bmatrix},$$

$$\mathbf{G} = \mathbf{F} \mathbf{W} \mathbf{F}^{-1},$$

$$[\hat{\underline{\mathbf{y}}}'(m) = \mathbf{F} \hat{\underline{\mathbf{y}}}'(m),]$$

$$\underline{\hat{\mathbf{y}}}'(m) = \mathbf{F} \hat{\underline{\mathbf{y}}}'(m),$$

$$\hat{\underline{\mathbf{h}}} = \mathbf{F} \begin{bmatrix} \hat{\underline{\mathbf{h}}} \\ \mathbf{0}_{L \times 1} \end{bmatrix},$$